

Sam Hagopian, Horticulture & Landscape Architecture

Faculty sponsor: **James Klett**

“Impact of Limited Irrigation on Health of Three Ornamental Grass Species”

Abstract

Throughout much of Colorado, the demand for water increases while the available water supply decreases. As a result, it is increasingly more important to conserve water wherever possible. One important way to conserve water is to plant low water use ornamental grasses in the urban landscape. Unfortunately, little scientific research has been conducted on determining the water use and drought tolerance of common ornamental grass species that are used in many urban landscapes and distributed through Colorado nurseries. Most plant species' responses to limited irrigation are based solely upon opinion or visual observation. Therefore there is a need for an ornamental grass water use study to be conducted at the W.D. Holley Plant Environmental Research Center (PERC) at the Colorado State University campus in Fort Collins. The objective of this study is to determine the growth response of three ornamental grass species that are commonly marketed throughout Colorado nurseries and garden centers for planting in Colorado landscapes. The ornamental grasses will be subjected to progressively decreasing amounts of irrigation based on the evapotranspiration (ET) of a short reference crop. The three species being tested are *Panicum virgatum* 'Rotstralbusch' (Rotstralbusch Red Switch Grass), *Schizachyrium scoparium* 'Blaze' (Blaze Little Bluestem), and *Calamagrostis brachytricha* (Korean Feather Reed Grass). Each species will be subjected to four levels of irrigation including 100%, 50%, 25%, with a 0% irrigation treatment plot will be used as a control. There will be two separate trials: In-ground trials, and potted trials. The in-ground trials will use all three species and will evaluate the water requirements of the three grass species. The potted trials will be conducted with two ornamental grass species and will evaluate water usage and drought tolerance. Plants will be evaluated for predawn leaf water potentials, growth habit, soil moisture, daily water loss, plant height/width, floral impact, color, winter survivability, and end of season leaf fresh/dry weights. A goal of this study is to be one of the first scientific evaluations of drought tolerance and water requirements in ornamental grasses. Ornamental grasses are frequently used in the urban landscapes of Colorado, however they are rarely evaluated scientifically. This experiment will accurately evaluate water requirements, drought tolerance, visual appeal, and overall performance of three commonly used ornamental grass species.